REMARKS

The Office Action mailed on January 11, 2008, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-22 were pending. By this paper, Applicants do not cancel any claims, and add claim 23. Therefore, claims 1-23 are now pending.

Applicants respectfully submit that the present application is in condition for allowance for at least the reasons that follow.

Indication of Allowable Subject Matter

Applicants thank Examiner Barbee for the indication that claim 14 contains allowable subject matter.

Specification Objections

In the Office Action, the specification was objected to as including a formality. In response, in order to advance prosecution, Applicants hereby amend the specification, as seen above.

Applicants thank Examiner Barbee for taking the time to recommend a change to the specification to alleviate the objection; a change that Applicants hereby embrace.

Claim Objections

In the Office Action, claim 5 was objected to as including an informality. In response, in order to advance prosecution, Applicants hereby amend claim 5, as seen above.

Applicants thank Examiner Barbee for taking the time to recommend a change to claim 5 to alleviate the objection; a change that Applicants hereby embrace.

Rejections Under 35 U.S.C. § 102

Claims 1, 4, 5, 7, 8, 11-13, 15 and 19-22 stand rejected under 35 U.S.C. §102(e) as being anticipated by Wiklund (United States Patent Publication No. 2003/0136196). In response, Applicants traverse the rejection, and respectfully submit that the above claims are allowable for at least the reasons that follow.

Applicants rely on MPEP § 2131, entitled "Anticipation – Application of 35 U.S.C. 102(a), (b), and (e)," which states that a "claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Section 103 amplifies the meaning of this anticipation standard by pointing out that anticipation requires that the claimed subject matter must be "*identically* disclosed or described" by the prior art reference. (Emphasis added.) It is respectfully submitted that Wiklund describes, either explicitly or implicitly, no claim now pending.

Claim 1 recites, among other features, a system for measurement, including a flow–velocity measuring device, a pressure–difference measuring device, and a calculation resource. Claim 1 further recites that the calculation resource is "designed to calculate flow, ***in real time, by solving an equation that relates the instantaneous flow to the pressure difference, where the latter is positive or negative*** in the said equation depending on variations in the speed of fluid flow in the conduit and/or the direction of the fluid flow." (Emphasis added.)

To the contrary, Wiklund does not describe each of these features. Specifically, Wiklund's teachings do not include a calculation resource designed to calculate flow, in real time, by solving an equation that relates the instantaneous flow to the pressure difference, where the latter is positive or negative in said equation depending on variations in speed of fluid flow in the conduit and/or the direction of the fluid flow.

Wiklund merely describes a bi-directional differential pressure flow sensor configured to establish a directional and flow rate of fluid flow. The system of Wiklund includes a bi-

directional flow restriction member 10 and a differential pressure sensor 22 coupled to a microprocessor 54 for calculating the flow rate of fluid flow.

Unlike the invention of claim 1, Wiklund's microprocessor is configured to calculate the flow rate of the fluid flow ***as a function of the absolute value of a pressure signal*** (see page 3, paragraph 0024 of Wiklund). As can be seen, in Wiklund's equation

$$Qm = NCdY \frac{d^2}{\sqrt{1-\beta^4}} \sqrt{ph}$$

for calculating mass flow rate *Qm*, the term *h* is the ***absolute value of the differential pressure sensor*** (see paragraph 0035 of Wiklund). Indeed, in view of the multiple of *h* being subjected to a square root calculation, a negative number could result in output of a radical. Further, Wiklund actually proposes calculating averaged flow rates using the absolute value of the pressure difference.

In contrast, as is pointed out above, claim 1 recites the feature that ***the differential pressure can be positive or negative in the equation***. That is, the differential pressure is employed just as it is, ***with no absolute value*** (see page 9, lines 27-28, of the present application for further details).

* * * * *

As noted above, claim 1 recites that the calculation resource is designed to calculate flow, ***in real time***. Wiklund does not describe a system for designed to calculate flow in real time. Just the opposite is the case. In Wiklund, the calculated flow rate *Qm/Qv* is an average flow rate. This is because the equations of page 3 of Wiklund ***are not dependent on time***.

* * * * *

Claim 1, therefore, is not anticipated by Wiklund for at least the reasons just detailed.

The claims that depend from claim 1 are likewise not anticipated by Wiklund, and thus are also allowable.

Claim 15 and its dependencies are allowable for the pertinent reasons detailed above regarding the differential pressure being positive or negative.

Claim Rejections Under 35 U.S.C. §103(a)

In the Office Action, claims 2, 3, 6 and 16-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wiklund in view of Puebe (U.S. Patent No. 5,493,512). Claim 9 is rejected as obvious in view of the combination of Wiklund with Akeley (U.S. Patent No. 3,967,504), while claim 10 is rejected in view of the combination of Wiklund with Brower (U.S. Patent No. 5,365,795.) Applicants respectfully traverse the rejection as to the claims above, and submit that these claims are allowable for at least the following reasons.

The Cited References Do Not Suggest All Claim Recitations

The cited references do not meet the third requirement of MPEP § 2143, which is that "the prior art reference (or references when combined) must teach or suggest all the claim limitations."

As detailed above, Wiklund does not teach certain recitations of claim 1. Wiklund does not suggest those recitations, either. Peube likewise fails to teach or suggest the missing features of Wiklund, and the Office Action does not assert anything to the contrary.

Peube merely describes a method for measuring the unsteady flow of velocity of a fluid. The method comprises a step of detecting instants at which fluid acceleration is zero (see column 8 lines 15-20), and calculating the fluid velocity (see column 7 lines 25-30). Peube, however, does not describe at a system comprising a calculation resource designed to calculate flow, in real time, by solving an equation that relates the instantaneous flow to the pressure difference, **where the latter is positive or negative in said equation depending on variations in speed of fluid flow in the conduit** and/or the direction of the fluid flow.

In Peube, the fluid velocity is calculated at instant at which the acceleration (*i.e.* variation in speed) is zero. Thus in Peube, the pressure difference cannot be positive or negative depending on variations in speed (*i.e.* acceleration) because the fluid velocity is calculated when there are no variations in the speed of fluid (*i.e.* acceleration is equal to zero).

Accordingly, Peube does not remedy the deficiencies of Wiklund.

The teachings of Akeley and Brower are quite limited, and do not make reference to the variables at issue detailed above, and thus also do not remedy the deficiencies of Wiklund.

In sum, the third requirement of MPEP § 2143 is not satisfied in the Office Action with respect to any of the claims rejected as obvious because the cited references do not teach each and every element of the present invention. Thus, the present claims are allowable.

The Level of Ordinary Skill In the Art has Incorrectly Been Ascertained

KSR did not repeal the *Graham v. John Deere Co.* factors - just the opposite, it reaffirmed them. One of those factors is the requirement that the PTO must resolve the level of ordinary skill in the pertinent art. It is respectfully submitted that the PTO presumes a higher level of skill of the ordinary artisan in this art than was actually present in the 2003-2004 timeframe.

The ordinary artisan would not have had a level of skill sufficient to render the invention obvious to that ordinary artisan. Specifically, before the disclosure of the present invention, the ordinary artisan would not have had the skill to predict that the exacting features of Wiklund could be modified in accordance with Puebe as is asserted in the Office Action. To the contrary, only the innovator would have had the skill necessary to predict such modification The ordinary artisan would not have had the skills to arrive at the present invention without instruction from the innovator. The Office Action is silent in regard to addressing the requisite *Grahm* factors.

Lack of Sufficiently Articulated Rationale to Modify or Combine the References

MPEP § 2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a "*prima facie* case of obviousness may also be rebutted by showing that the art, in ***any*** material respect, teaches away from the claimed invention." (MPEP § 2144.05(III), second paragraph, emphasis added, citations omitted.)

As detailed above, Wiklund explicitly teaches that the absolute value of h is utilized, and thus h cannot be "positive or negative." By placing *h* inside the square root symbol, *h* necessarily cannot be negative, else a radical would result. That is, *h* can only be positive or zero.

The ordinary artisan, educated in mathematics, would have immediately recognized this, and thus would have known that h could not be negative. Therefore, Wiklund's equation necessarily teaches away from a calculation resource where h could be negative, and, therefore, to the extent that it is assumed *arguendo* that a *prima facie* case of obviousness may have been met, that case is hereby rebutted.

* * * * *

The Office Action fails to meet the requirement of providing a sufficiently articulated rationale to modify Wiklund and/or to combine Wiklund with other references.

In the Office Action, the common theme in rejecting the claims is that Peube's equation 13 allegedly includes a derivative of volume flow and instantaneous flow, and that this somehow rendered the various claims obvious in view of Peube. Applicants disagree. Equation 13 of Peube is not used for calculating the flow using a pressure difference measured in the conduit. To the contrary, as explained in Peube, equation 13 is used for calculating the flow ***when the conduit is too short to present a significant pressure difference*** (see Peube, column 7 lines 10-15). In such circumstances, the static pressure is measured ***by only one*** tap in the wall of the duct (see column 7 line 34-35), which corresponds to the term "*p*" in equation 13, where the term P0 in equation 13 corresponds to ***the atmospheric pressure*** (see column 7 line 33), ***but not to a static pressure measured in the conduit***.

Therefore, the rationale proffered in the Office Action for modifying Wiklund in view of Peube is not correct, and, therefore, the requirement that a sufficiently articulated rationale for modifying /combining the references is not satisfied in the Office Action.

New Claim

In the Office Action, new claim 23 has been added. This claim further defines the invention. Claim 23 is allowable for reasons concomitant with the reasons that claim 1 is allowable, as detailed above.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Barbee is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date: April 10, 2008

By _____

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 295-4747
Facsimile: (202) 672-5399

Martin J. Cosenza
Attorney for Applicant
Registration No. 48,892